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ANALYSIS STUDY OF MULTISPECTRAL DATA, ERTS-A, FROM AN AREA IN WEST PAKISTAN /

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Type I Progress Report for Period 1 January 1973 - 28 February 1973

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Type I Progress Report
ERTS-A

- a. Title: Analysis study of multispectral data, ERTS-A,
from an area in West Pakistan
- ERTS-A Proposal No.: SR 181
- b. GSFC ID No. of P.I.: IN 396
- c. No problems.
- d. Analysis of data is mostly completed and report mostly prepared.
- e. Summary of significant results.

USE OF ERTS-1 IMAGES IN THE SEARCH FOR PORPHYRY COPPER
DEPOSITS IN PAKISTANI BALUCHISTAN

Geomorphic features related to a known porphyry copper deposit at Saindak, western Chagai District, Pakistan, are easily distinguished on ERTS-1 images. New geologic information from the images was used in conjunction with known geology to evaluate one previously known prospect area and to suggest two additional ones, but no new prospects were recognized on the basis of the images alone. The study also showed that Saindak-type deposits are not likely to be present in some extensive areas of the Chagai District.

The Saindak deposit is in an area of relatively easily eroded folded sedimentary and volcanic rocks. The deposit is characterized by an elongate zone of easily eroded sulfide-rich rock surrounded by a resistant rim of hornfels and propylitically altered rock. Both this rim and the central sulfide-rich valley are conspicuous features on the images. Swarms of dikes are probably useful for distinguishing real rims from other resistant rock types, but there is no expression of them on the image, although they are easily seen on aerial photographs of the Saindak rim.

During field mapping, patches of strong red and yellow hue related to the mineral natrojarosite were noted in the central valley. Attempts to detect a color anomaly using simple false color composites were not successful.

The investigation showed that a rim like that at Saindak does not form if regional metamorphism has increased the resistance of the country rock to erosion, as in the Pakistan-Iran border region northwest of Saindak.

e-1. Discipline category: A. Mineral Exploration

- f. Manuscript prepared for submission to ERTS-1 Symposium, March 5-9, 1973, entitled, "Use of ERTS-1 images in the search for porphyry copper deposits in Pakistani Baluchistan", by Robert G. Schmidt
- g. No changes recommended.
- h. No changes in Standing Order Forms.
- i. No changes
- j. No changes
- k. Not applicable.